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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,893	12/29/2000	Robert Palifka	09991-014001	6685

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EXAMINER

NGHIEM, MICHAEL P

ART UNIT PAPER NUMBER

2863

DATE MAILED: 02/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/749,893

**Applicant(s)**

PALIFKA ET AL.

**Examiner**

Michael P Nghiem

**Art Unit**

2863

AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2004 and 06 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 29-45, 47-58 and 60-99 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 45, 48, 50, 51 and 85-99 is/are allowed.
- 6) ☒ Claim(s) 29-33, 36-39, 43, 44, 52, 55-58, 60, 61, 65-73, 76-78 and 82-84 is/are rejected.
- 7) ☒ Claim(s) 34, 35, 40-42, 47, 49, 53, 54, 62-64, 74, 75 and 79-81 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

The Amendment filed on January 21, 2004 has been acknowledged.

### ***Request for Continued Examination***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 6, 2004 has been entered.

### ***Claim Objections***

2. Claims 29 and 82-84 are objected to because of the following informalities:

- claim 29, "the surface" (line 3) lacks antecedent basis.
- claims 82-84, "the orifice plate" lacks antecedent basis.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 29-32, 37-39, 44, 52, 55-57, 60, 61, 66-72, 77, 78, and 82 are rejected under 35 U.S.C. 102(b) as being anticipated by DeYoung et al. (US 4,751,774).

Regarding claims 29, 44, and 70, DeYoung et al. discloses an ink jet printing module and method of manufacturing same (Fig. 3) comprising a piezoelectric element (12) having a surface (Fig. 1), and a thermoplastic bonding component (14), the thermoplastic bonding component having dimensions of a surface of a first component (16) heat-bonded to the surface (via thermoplastic cement 14), wherein the piezoelectric element includes lead zirconium titanate (column 5, lines 9-12).

Regarding claims 30 and 55, DeYoung et al. discloses that the thermoplastic bonding component includes a first surface heat-bonded to the surface of the piezoelectric element (Fig. 1) and a second surface heat-bonded to a surface of a component of the ink jet printing module (Fig. 1).

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Regarding claims 31, 56, and 71, DeYoung et al. discloses that the thermoplastic bonding component includes an electrode pattern (pattern of 18's, Fig. 2).

Regarding claims 32, 57, and 72, DeYoung et al. discloses that the piezoelectric element is lead zirconium titanate (column 5, lines 9-12).

Regarding claims 37, 52, and 77, DeYoung et al. discloses an ink channel (column 1, lines 6-8, 22's, Figs. 2, 3), the piezoelectric element being positioned to subject ink within the channel to jetting pressure (Fig. 6), and electrical contacts arranged for activation of the piezoelectric element (contacts of 32).

Regarding claims 38, 60, and 78, DeYoung et al. discloses a series of channels (column 1, lines 6-8, 22's, Figs. 2, 3).

Regarding claims 39 and 61, DeYoung et al. discloses that each of said channels is covered by a single piezoelectric element (26).

Regarding claims 44 and 69, DeYoung et al. further discloses heating the surface to bond the surface to the thermoplastic bonding component (inherent feature of thermoplastic cement 14).

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Regarding claim 66, DeYoung et al. discloses applying pressure to the surface and the thermoplastic bonding component (pressure exerted by 12 and 16 on 14, Fig. 1).

Regarding claim 67, DeYoung et al. discloses that pressure is applied during heating (14 is between 12 and 16 before thermo-bonding process).

Regarding claim 68, DeYoung et al. discloses that the surface and the thermoplastic bonding component are substantially free of liquid adhesive (thermoplastic cement 14 is rigid when cured).

Regarding claim 82, DeYoung et al. discloses that the module includes an orifice plate and adhering a protector strip (44) over the orifice plate (42).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 33 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeYoung et al. in view of Singh et al. (US 6,361,146).

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DeYoung et al. discloses the claimed limitations as discussed above except that the thermoplastic bonding component has a thickness between 1 micron and 150 microns.

Nevertheless, Singh et al. discloses that the thermoplastic bonding component has a thickness between 1 micron and 150 microns (column 5, lines 1-5) for the purpose of use in ink jet assemblies.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the thickness of thermoplastic bonding component of DeYoung et al. to that of Singh et al. for the purpose of use in ink jet assemblies.

Claims 36, 58, and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeYoung et al. in view of Yamanaka (US 6,432,348).

DeYoung et al. discloses the claimed limitations as discussed above except that the thermoplastic bonding component includes an adhesive polyimide.

Nevertheless, Yamanaka discloses that the thermoplastic bonding component includes an adhesive polyimide (column 6, lines 39-42) for the purpose of bonding a piezoelectric component (9) to an ink jet main part (7).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide DeYoung et al. with an adhesive polyimide as discussed by Yamanaka for the purpose of bonding a piezoelectric component to an ink jet main part.

Claims 43, 65, 83, and 84 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeYoung et al..

DeYoung et al. further discloses an orifice plate (42) and a protector strip (44) adhered to the orifice plate (Fig. 6).

Furthermore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide either the orifice plate or protector strip of DeYoung et al. with a thermoplastic bonding material for the purpose of bonding the protector strip to the orifice plate.

#### ***Allowable Subject Matter***

5. Claims 34, 35, 40-42, 47, 49, 53, 54, 62-64, 74, 75, and 79-81 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



6. Claims 45, 48, 50, 51, and 85-99 are allowed.

### ***Reasons For Allowance***

7. The combination or method as claimed wherein the thermoplastic bonding component has a thickness between 10 micron and 125 microns (claims 34, 35, 53, 54, 74, 75) or the thermoplastic bonding component includes a filter (claims 40, 45, 47, 49, 62, 79) is not disclosed, suggested, or made obvious by the prior art of record.

### ***Response to Arguments***

8. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

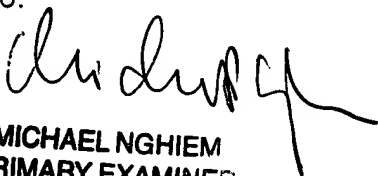
### ***Contact Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Nghiem whose telephone number is (571) 272-2272. The examiner can normally be reached on M-H from 6:30AM – 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached at (571) 272-2269. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



**MICHAEL NGHIEM**  
**PRIMARY EXAMINER**

Michael Nghiem

February 19, 2004